DOCUMENT RESUME

ED 383 594 SO 024 808

AUTHOR Adey, Philip; Dillon, Justin
TITLE Large Scale Delivery of Effective Staff Development in Indonesia.
PUB DATE Apr 94
NOTE 10p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 4-8, 1994).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Continuing Education; *Faculty Development; Foreign Countries; *Inservice Teacher Education; *Institutes (Training Programs); On the Job Training; Professional Continuing Education; *Professional Development; Professional Training; Retraining; Secondary Education; *Staff Development
IDENTIFIERS *Indonesia

ABSTRACT

This research describes how the Pemnatapan Kerja Guru (PKG) Project in Indonesia developed into one of the largest continuing inservice programs in the world. Working with UNESCO and UNICEF, the Ministry of Education began a radical innovation of inservice training of secondary teachers already in the classrooms. Beginning with science teachers in 1980, mathematics teachers were included in 1981 and now includes teachers of English, Indonesian language, and social studies. The components of the delivery of inservice and how they work together to bring about change in classrooms, the outcomes of the project evaluations, and the current status of the project in Indonesia also are described. (EH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 383 594

Large Scale Delivery of Effective Staff Development in Indonesia

Philip Adey and Justin Dillon

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J.S. DILLON

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Go 024808

BEST COPY AVAILABLE

Large Scale Delivery of Effective Staff Development in Indonesia

Philip Adey and Justin Dillon

Centre for Educational Studies, King's College London, London SE1 8TX, U.K.

Background

Curriculum development in rapidly developing countries often reveals some insights into the complexity of the processes involved in educational change. Rapid social and political change in post-colonial times is invariably coupled with access to aid from more developed countries. This in itself is no guarantee of success especially when the educational systems of those more developed countries are themselves facing critical re-examination.

Since winning independence from the Netherlands in 1949, Indonesia has evolved into a major South-east Asian power. Comprising over 13,500 islands, of which less than 10% are inhabited, the archipelago stretches almost from Malaysia to Australia. Its diverse population (over 350 indigenous languages are still spoken) is rapidly approaching 200 million making it the fourth largest country in the world (behind China, India and the U.S.A.). The Republic of Indonesia is a democracy, with guaranteed representation in parliament for the armed forces, in which one party has held power continuously since independence. This period of relative stability has seen substantial industrialisation and rapid population growth which has led to a policy of transmigration of, predominantly, Javanese people to the less crowded provinces on the islands of Sumatra, Borneo (most of which is the Indonesian territory of Kalimantan), Sulawesi and Irian Jaya. A national policy, the pancasila, encourages the belief in strength through unity, which is the Indonesian motto.

Indonesia has the world's largest centralised education system outside China. There has been a rapid growth in the numbers of pupils in primary education and an even faster growth at the junior secondary level due both to population growth and to the increasing proportion of the age cohort for whom secondary education is becoming available. By the late 1970s, it was clear that this rapid growth would throw a considerable strain on the teacher education system.

Many of the strategies (e.g. the Cascade model) advocated by overseas 'experts' were tried and failed during the 1970s. However the political will to improve the education system coupled with the availability of oil, and thus foreign cash, resulted in an innovative training programme for teachers which came to be implemented on an enormous scale. In this paper we will describe how the PKG project developed from a small office in Jakarta to what is probably the largest continuing inservice programme in the world. We will describe the components of the delivery of inservice and how they have worked together to bring about change in classrooms, the outcome of project evaluations, and the current status of the project in Indonesia.

Teacher supply and training

In Indonesia, most secondary school teachers are trained in IKIPs (*Institut Ketahuan Ilmu Pendidikan*), although some are trained in Faculties of Education in regular universities. The "first degree" level, known as Sarjana Satu or S1, can be achieved after a minimum of 4 years study after senior high school. There are also a series of lower level Diplomas available for 1, 2, or 3 years study, known as D1, D2, and D3 respectively. In principle, to qualify as a teacher for a senior secondary school requires at least an S1 degree. For a junior secondary

TM024437

school, the D3 diploma is accepted. In practice, during the years of most rapid expansion in the 1980s, the teacher education system could not match demand with supply of adequately trained teachers, and consequently many secondary schools found themselves with teachers trained only to D2 or D1 level. Not only was the time devoted to these teachers' preparation inadequate, but the nature of instruction in IKIPs at that time tended to be formal, with subject matter presented in one course, and some academic educational theory in another. Diplomates from this system lacked confidence, and in many cases competence, and were often forced to fall back on the textbook as their sole guide and mentor.

Class sizes were often around 50 students and basic teaching equipment (including chalk) was generally non-existent. In order to make enough money to live, most teachers had (and still have) more than one job, sometimes working in a state school in the morning and a private school in the afternoon. Critical thinking by students was discouraged. Such was the situation facing the Directorate of Secondary Education in 1980. According to Gordon Aylward, who was a consultant to the project that will be described:

> They were already running crash courses and they were running the D1, the SLP's crash course and about all that that was producing extra was a crash.
> (Interview transcript, 2 July 1993)

Drastic situations require drastic solutions, and the line of attack taken by the Ministry of Education, working with UNESCO and UNICEF, was through a radical innovation in inservice training of secondary teachers already in post. We believe that the project established, called PKG (*Pemnatapan Kerja Guru*: upgrading the work of the teachers) came to offer a model of inservice staff development which deserves to be held up to world-wide scrutiny both for the thoroughness of its planning and for the effectiveness of its execution.

[1]PKG started in 1980 with science teachers, and in 1981 with mathematics. Today it includes also teachers of English (Tomlinson, 1990), Indonesian language, and social studies. In this account we want to concentrate on the development and long term effects of PKG, and thus we will restrict ourselves to an account of the work in science.

Brief history prior to the project

With the discovery of oil in Indonesia, the Government began to realise that it could afford to attempt major construction work across the country. As Aylward recollects:

> .... the whole project arose from the government's concern about upgrading education and using the funds that came from the OPEC funds in the 1975/76, when they realised their power of marketing in oil and they had a big influx of funds. Now they used this money, among other important things, to upgrade education particularly with emphasis on science education. And so they began to build schools.

The school building policy was determined by the number of students in a school:

> In schools ...which had 900 or more pupils for the SMA, the senior secondary high school, that's the three years grades 10, 11, 12, they would build three lab's - a chemistry, a biology and a physics lab. For 600, they would build two lab's, for 300 they would build one lab., and they would combine those two lab's in various ways.

As well as providing the buildings, the Government provided equipment:

---

[1]For a thorough and insightful description of the Indonesian education system prior to the PKG project readers are referred to Thomas (1991).

So they also dropped, and they called it 'the dropping', it was quite an appropriate term actually, they dropped equipment into the schools Into the new labs they dropped equipment worth about, for a three lab. operation that's about 20,000 dollars per school for three labs. So it was worth probably about something in the order of 6 to 7,000 dollars per lab. in the establishment side of it, so this was the other big thing. Now this happened well before this project. This began in 1976, 1975 I think it was actually. And they did the most remarkable thing in 1975, they supplied something of the order of 3000 schools with this standard package of equipment. Starting from virtually no background of handling equipment, no background of equipment manufacture. And they started local equipment manufacture. Of course most of the chemicals and much of the equipment was imported but they insisted on using at least local agents in co-operation with overseas supply houses. And to encourage the local agents then to sponsor local manufacture.

The kit I think was a sort of a standard collection of equipment that people thought was necessary for teaching chemistry, physics and biology at that level. It had standard, secondary school microscopes, it had triple beam Ohaus balances for chemistry. It had a range of about 150 chemicals, it had the ordinary, you go through a standard catalogue actually and it had the various equipment for mechanics, for electricity and magnetism, for heat, light and sound. But you could see it was virtually an extract from Philip Harris' or any of the other supply journals.

The idea of the kits did not come from the Indonesians themselves, it was one of several 'solutions' advocated by international advisors during the 1960s and 1970s:

The idea of the kits came from the UNESCO. UNESCO had at, in Jakarta, a science office. No it was a science office, a regional science office and then they had a permanent science officer who was concerned with the upgrading of science and technology. And this person produced the UNESCO standard lists and there was another list, the UNICEF standard list of science equipment. And this was just supplied holus-bolus from Philip Harris[1] - he was an Englishman. Ha ha ha.

However, the kits didn't work for a variety of reasons:

The fact that there was a group I think from, probably it may have been from UNESCO, a sort of mission, you know, a project evaluation mission or identification mission had come round and looked at the schools where these droppings had been made you see, and found that, we're talking now about 1977, somewhere in '78, 1978. And they found that, in many schools, the teachers didn't even have the skill to unpack the equipment and they found a lot of equipment not unpacked or, but they also suffered from the problem that's common in developing countries. The responsibility for the equipment was put in the hands of the headmaster and nobody was allowed to write-off equipment and so anything that was broken or even consumed, was expected to be replaced and so the teacher, this responsibility of the headmaster was handed on to the science teacher and the science teacher found the safest way of looking after the equipment was to keep it locked in the cupboard and so a lot of it was locked in cupboards and never used.

Different problems existed in areas where the teachers were able to use the equipment and the chemicals:

.... there was no re-supply system, there was only an initial establishment system of the equipment.

[1]Philip Harris is the name of one of the two largest suppliers of school science equipment in the United Kingdom.

.... there was no re-supply system, there was only an initial establishment system of the equipment.

This meant that the equipment and the chemicals that were used were rarely replaced on a systematic basis.

The tactics advocated reflected a view of the nature of science that was waxing during the 1970s, that is, good science teaching must involve practical work. In order to do practical work, teachers have to have equipment and chemicals. Generally the practicals were made up of a canon of experiments that were tried and sometimes tested in the USA, the UK and Australasia. For a further discussion of the relationship between the nature of science and change in science education in developing countries see Monk, Fairbrother and Dillon (1993).

A brief history of the project

The broad aim of the inservice programme that evolved was to improve the quality of instruction in secondary school classes. Unpacking this rather bland statement a little, the purpose was to improve the learning experience of students such that they no longer simply memorised information for regurgitation in exams, but through practical work, clear well-ordered explanations, and dialogue with the teacher came to comprehend the concepts and processes laid out in the Indonesian National Curriculum at a level where the meaning they ascribed to the concepts came close to the meaning accepted by scientists. Thus the first aim was cognitive and instructional, although later, important new emphases such as the application of concepts to the everyday life and economy of Indonesia were added.

To attain these instructional aims through inservice education of teachers, it was assumed that the first priority would be to increase teachers' own confidence in their grasp of subject matter. It was taken as axiomatic that without such confidence, teachers would be unwilling to break from the textbook-driven teaching style or to open dialogue with students where their own knowledge would be tested.

It certainly wasn't part of the teachers' whole professional experience. They had never done any experiments as a student, at school, they had never done experiments ... in the university. And so they'd come through learning book science and they had very little application of science to everyday matters and that, no transfer of science to everyday life. Because, in actual fact, it was a book system. When you ask them what they did in physics, they did 750 problems which were numerical substitutions in a variety of ways. When you ask them what they did in chemistry, they will tell you that they had 150 equations in the course. And so it was balancing equations, it was stoichiometry this sort of calculations in chemistry. This was what was examined. All physically chemically based so there was very little application for science for those teachers. But they did run the inservice training programmes but they were very much under-estimated as to what time was needed to bring a teacher up to the point where he was capable of even unpacking the chemicals. To tell you the truth they were scared stiff of a bottle of hydrochloric acid and didn't [know] the difference between hydrochloric acid and nitric acid or sulphuric acid. So there was a big job needed in training teachers.

Thus one component of the programme would be content upgrading. The development of assessment techniques requiring more than multiple choice questions demanding only recall was seen as another key to the improvement of instruction. Hence the design and analysis of new types of assessment was another component of the inservice programme. The development of practical skills was regarded as another important component.

The project was run by a group of three staff members from the National Science Centre in Bandung with some help from academics from I.T.B. (*Institut Teknologi Bandung*[1]), also in Bandung:

> .... we got national consultants created from the people at I.T.B. and from Gaja Mada University. And from a couple of the IKIPs particularly the IKIP in Bandung where the people of the science centre were more closely associated with. So we had a good nucleus of people and they had good ideas. They'd been involved in the early Nuffield operations so they had this clinical approach to science through discovery ideas and so on.

The rapid expansion of education that the Government planned in the early 1980s required:

> something in the order of 1200 new secondary schools a year. Now it meant that what they needed was 15,000 new secondary teachers. And of those, about one-fifth to one-quarter would be subject science specialists for the senior secondary schools.

Education was seen by the public as being an indicator of the change through which Indonesia was going:

> So then they had this great flooding demand for secondary education. They'd no idea how demanding this was. I can give you an instance. We were up in Aceh, in the northern province of Sumatra .... and I was travelling with the head of the education office and we were going along the northern coast and we'd left this township and we ... and there was a road block. There was logs across the road and there was a gathering, the people were, excited people around. It turned out that these were the people, the educational, or the parent group who had just completed building a school in their village and although they'd tried and tried through the normal channels to get a teacher appointed, they'd got no response. And they knew that the Kepala, the head of the section, was coming there and so they virtually hijacked him and took him to the school, to show him their school and to show that they didn't have a teacher. And they threatened to keep him there until he gave the approval for a teacher to be appointed. .... And I had seen several places where we were visiting, when we were selecting people for the project, the same sort of parent and citizen actions for education. They expounded that they had a right now to education, this was part of the revolution.

With funding from the United Nations and the Government and with the aim of improving the quality of science education across the country, the group began to devise a methodology that predates many of the strategies for inservice training that have been advocated in recent years.

Identifying the trainers

In order to realise the aim of training thousands of science teachers it was decided to recruit a small group of teachers who were already recognised as innovative or who would be able to train other teachers.

> So, the project was based on the idea of looking around the teaching fraternity and finding people who could be upgraded from the existing experienced teachers to become leaders or to run their programmes for upgrading on a inservice training programme. So we went out to look at teachers, to invite teachers to come and we went and looked at them teaching and we gave them tests and so on like that to get a group of people that could be trained.

[1] Equivalent in function to M.I.T. in the U.S.A.

The general approach was to collect data on secondary teachers in the region in the subject area which was being targeted. Thus the names of all teachers of that subject who (a) had at least the S1 degree (b) had at least three years teaching experience were obtained by the project management. These teachers were invited to a meeting at a central location, where they were tested for their own subject knowledge and also for their knowledge of English (this latter because much of the later instruction was to be delivered in Malaysia, Britain, or Australia). The teachers were interviewed to establish their interest in a wider role and their likely long term residence in the region. On the basis of this procedure, two or three teachers were selected for each subject (physics, chemistry, biology, and mathematics).

> .... we only had 12 people, I think, in the first training group, maybe 15, but we were taking six[1] provinces and we had two people from each province and so it was twelve, maybe three from some, 12 to 15 people was the base for the first training programme. And of course the other problem was, this equity was carried to the extreme in that everybody had to be in with two people. So you go to Benkulu which has got three schools or something and it's got two people involved. You go to Central Java, there were, Jakarta, the provinces, the five provinces in Java and they've only got two people involved so it was poor foresight actually. All limited funds but the demand was there. You could not say to the other provinces that they were being overlooked, you had to bring them in as quickly as you could. That was the big weakness in the end.

These teachers were now invited to participate in a national or international workshop. The choice of location for the overseas training was critical and the project team chose to send trainee instructors to the South East Asia Ministers of Education centre, the regional Education and Mathematics Centre in Penang, Malaysia. The trainees were from a wide range of provinces (for reasons of equity) and it was thought, by the Director of Secondary and General Education, that the culture shock of going to a Western country would be too great. Another advantage of RECSAM was that training could be done in Bahasa Indonesian, the official Indonesian language which is derived from Malay. Indonesian tutors were employed alongside consultants from more developed countries and from other Southeast Asian countries.

> They also agreed that the people from the developed countries and from the Southeast Asian specialists working there, would follow the teams back to Indonesia and take part in the national training programmes which would follow. They also agreed that it would be a completely tailor-made course for the needs of Indonesia and that they would work on producing teaching materials and develop materials during the ... four months' course and bring them back to try them out in the ... larger groups ..., at the national workshops.

As the project became established it became possible to run the workshops in Indonesia with experienced instructors assisted by the central project team and consultants from top ranking universities in Indonesia and from overseas. On completion of their first workshop, teachers were designated as 'Assistant Instructors'.

The Principles

Joyce and Showers (1987) have shown, from meta-analysis of studies of effective inservice programmes, that there is virtually no chance of an inservice programme having any real effect on teaching practice if it does not include some element of what they call "coaching" in the teachers' schools. In other words, no matter how much participants may practice and perfect new techniques within an inservice course, they will not transfer it to their normal teaching routine in schools unless some element of the inservice programme reaches into the schools themselves. Ideally, this takes the form of the inservice instructor visiting the school and

[1] Out of 27 in total

working with the teacher in the development of new techniques in the school setting. In developed Western countries such follow up by inservice instructors can be very expensive, and an alternative proposed by Joyce and Showers is peer-group coaching, where a group of teachers in one school who are following the inservice course support each other by observing each others' classes and encouraging the adoption of new techniques.

The importance of work in schools to effective inservice was recognised by the PKG project long before its role was confirmed by the Joyce and Showers meta-analysis. In PKG, the work in schools was called the "onservice" component, and from the start the project was known as the "PKG inservice-onservice project":

> Very early in the, actually, even at the time of writing the first year of the project, it was hinted, and during that first year we had to write the full project document for another four years. It was written into the full four year project was the on-service side .... And I could see it was going to be very expensive and I was concerned that whether it could be justified in terms of its cost. In terms of its, what should have been, its return, I had no doubts whatsoever because I had seen many cases that had been working in Thailand since 1963 and I could see that follow-up was the most essential aspect of any in-service operation. You cannot in a one month course replace the whole training of an, an inadequate training of an undergraduate programme. In a modern science education programme you've got to get the same group coming back and back and you've got to follow-up at the class interface with the groups and that was the essential part of the scheme.

The first thing the instructors are required to do - and this is a significant element of the overall program - is to return to their own schools and to teach for one semester, putting into practice what they had learnt about teaching methods using enhanced subject knowledge. They are observed and assisted by experienced instructors and occasionally by overseas consultants. When subsequently they move into their instructor role they are in a strong position to counter from their own experience the common stopper: "that's all very well, but it wouldn't work in my school".

After this semester of making the new methods work for themselves, instructors in groups start to run one semester inservice-onservice courses for all teachers in their own, and later in more distant, regions. The pattern of these programs is: an initial one week course at a teachers' centre or school to introduce the methods and materials. In each week of the semester, instructors would visit schools and work with teachers to implement the new methods. Every Saturday, all teachers in the region meet to reflect on experiences and learn about the following week's work. By the end of the semester every teacher in the programme has been taken through a set of activities in their own schools, and proved to themselves that they could change their practice and improve the quality of learning of their students.

Evaluation

The PKG inservice-onservice programme has multiplied and spread to all corners of Indonesia. An early evaluation (Eggleston 1984) showed that pupils of PKG teachers performed significantly better than non-PKG controls, especially in tasks which required comprehension, problem-solving, and practical ability. Currently evaluation is limited to quantitative measures of numbers teachers and pupils who have been influenced by the project, but there are many consultants' reports which testify to the changed quality of education in 'PKG' classrooms.

One issue that is not specific to Indonesia is the perceptions of the project that are held by the participants and by the other actors in the educational scene: principals; inspectors; civil servants and politicians. As in the United Kingdom, the perceived usefulness of multiple-choice tests to measure science achievement is tending to simplify the nature of the changes taking place in the education system. As Lewin (1993: 14) argues, in planning educational

policy, 'qualitative judgements have to be made as well as assessments based on evidence that is relatively objective in collection and analysis'.

Recent developments

Recent developments in the project include the upgrading of senior instructors through study in Britain or Australia, the setting up of PKG inservice centres (Sanggars) in regions, the establishment of a central development team to plan and deliver the national workshops and to improve the quality of print materials produced by the project, and the co-opting of project team members on to national curriculum councils. The population rise in secondary schools is starting to level off, and earlier increases in preservice teacher education provision mean that newly entering teachers are generally better qualified than they were even five years ago. There may be an end in sight to the high level of demand for better qualified science and mathematics teachers in secondary schools, but the PKG inservice centres and instructors will still have an important role to play as channels for innovative thinking in teaching and learning.

Conclusions

Because of the way that curriculum innovation on such a large scale as this happens, it is more likely that the people who can see where one project begins and another one ends are the accountants and not the teachers and learners. Education is seen as one of the keys that will unlock the doors of advancement and recognition for many developing countries. Generally if countries feel that they are lagging behind in terms of industry and commerce the education system is often blamed and changed. Foreign aid comes in many varieties but the type that questions the conscience least is help with educational reform. Each operation leaves its traces and throughout the developing world the scars left by consultants and politicians on the schools and the schooled remain for all to see. This is particularly true in Indonesia where gas taps that have never been connected to a supply corrode away relentlessly. For some countries this means only the adoption of one western system to replace another.

What has happened in Indonesia is all the more remarkable given the range of conflicting advice, the sheer size of the country, the cultural diversity, the problems of transport and communication and the lack of basic resources. That the PKG project has reached hundreds and thousands of pupils from the northernmost tip of Sumatra via Java and across the Wallace line to East Timor is remarkable and unprecedented.

The lessons of the PKG project seem, from our viewpoint as participants, to be clear and powerful. Classroom changes need time to be learned, accepted, tried, adapted, supported and practised. But time is only one key factor: the regular support of people who both teach and train teachers is critical if the innovation is to be accepted by classroom teachers - if the language of the innovation is that spoken by those who to whom it is addressed.

References

Eggleston J. (1984). An evaluation of the PKG inservice-onservice programme in Indonesia. Jakarta: Directorate of Secondary Education, Ministry of Education;

Joyce B. and Showers B. (1980). Student achievement through staff development. New York: Longman;

Lewin, K.M. (1993). Planning policy on science education in developing countries, *International Journal of Science Education*, **15**, 1, 1-15;

Monk, M., Fairbrother, B. & Dillon, J. (1993). Learning content through process: Practical strategies for science teachers in developing countries, Journal of Science and Mathematics Education in Southeast Asia, **16**, 2;

Thomas, R. M. (1991). Curriculum Development in Indonesia, in C. Marsh and P. Morris (Eds.), *Curriculum Development in East Asia.* pp. 202-223. London: Falmer Press;

Tomlinson, B. (1990). Managing change in Indonesian high schools, *English Language Teaching Journal*, 44,1, 25-37.